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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,428	08/14/2003	Willibald Stobbe	15283A-002600US	9889
20350	7590	02/14/2005	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			SMITH, RICHARD A	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/642,428	Applicant(s) STOBBE, WILLIBALD	
	Examiner R. Alexander Smith	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040625</u> | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
6) <input type="checkbox"/> Other: _____ |
|--|--|

DETAILED ACTION

Claim Objections

1. Claims 1-7 are objected to because of the following informalities:

Claim 1:

- a. "the input gear" in line 8 lacks antecedent basis.
- b. "the first transmission gear" in line 9 lacks antecedent basis.
- c. --said--should be inserted before each occurrence of "teeth" in line 12 in order to properly refer to their antecedents.
- d. "the following transmission gears" does not properly refer to their antecedents introduced in line 6.
- e. It appears to the examiner that a pinion and the wheel "have helical gears" in lines 14-15 should be --are configured as helical gears-- in order to be grammatically correct.

Claim 2: It appears to the examiner that the input gear and the wheel "have helical gears" should be --are configured as helical gears-- in order to be grammatically correct.

Claim 3: "a single circuit board" in line 4 should start with --the-- in order to properly refer to its antecedent.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 100 60 574 to Strasser in view of U.S. 6,246,232 to Okumura.

Strasser discloses a multiturn angle measuring device with a first dimensional standard (6), which is nonrotatably connected to an input shaft (2) and which is sampled with a first scanning unit (8) to determine an angular position of the input shaft (2), and with additional dimensional standards (10-12) that measure the number of turns of the input shaft (2), each additional dimensional standard being reduced in speed by means of a reduction gearing from the preceding dimensional standard [0013] arranged in parallel to each other, and a scanning device (30-32) for the sampling of each dimensional standard arranged on a circuit board (4), wherein the input gear is connected to the input shaft and the first transmission gear have axes of rotation, the following transmission gears are arranged parallel to the input shaft, wherein the scanning unit for the first dimensional standard and the scanning units of the additional dimensional standards are arranged on a single circuit board [0006], wherein the additional dimensional standards are centrally carried by main gears (10-12) that have axes of rotation parallel to the input shaft (2) and driven via additional intermediate gears (shown but not labeled) are arranged between the main gears, and wherein the gears are arranged on a single-piece multiturn unit [0006], the other dimensional standards comprise diametrically magnetized permanent magnets [0014]. Furthermore, Strasser discloses that the first dimensional standard is a multitrack code disk such as a binary or Gray

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code which is illuminated by a light source (7) and detected by a detector (8) and the additional dimensional standards use a magnetic field effect, e.g. Hall effect or magnetoresistive.

Strasser does not disclose the input gear connected to the input shaft and the first transmission gear have axes of rotation that are not parallel to each other, flanks of teeth of the input gear and of a wheel of the first transmission gear are not parallel to the axis of input rotation of the respective gears a number of teeth of the input gear is smaller than a number of teeth of the wheel of the first transmission gear, and a pinion of the first transmission gear and the wheel of a second transmission gear have helical gears, the input gear connected to the input shaft and the wheel of the first transmission gear have helical gears, the first dimensional standard is a transmissive Moire code disk which is illuminated by a transmitter and which is detected by a photoelectric scanning unit, the first dimensional standard comprises one or more magnets which are magnetized in sectors and detected by one or more magnetic sensors.

Okumura discloses a multiturn angle measuring device wherein a reduction gearing arrangement uses crossed helical gears (3a and 7c) between the input shaft and the rotary encoder of the first transmission gear (7) and wherein the number of teeth of the input gear is smaller than a number of teeth of the rotator (4/1 ratio) in order to minimize backlash and to provide a more uniform turning of the rotary encoder. Therefore, with respect to the input gear and the first transmission gear have axes of rotation that are not parallel to each other, the flanks of teeth of the input gear and of a wheel of the first transmission gear are not parallel to the axis of input rotation of the respective gears, and a pinion of the first transmission gear and the wheel of a second transmission gear have helical gears: It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the gear and wheel arrangements between

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the input gear and the second transmission gear, taught by Strasser, to use crossed helical reduction gear arrangements, as suggested by Okumura, either singly or in combination in order to minimize backlash and to provide a more uniform turning of the rotary encoders, as taught by Okumura, and in order to provide less impact loading, quieter operation and longer life.

With respect to claims 6 and 7: Strasser disclose that an absolute angular position can be determined using gray code, binary code or magnetic standards with the appropriate sensors. Okumura discloses that an absolute angular position can be determined using a Hall effect. Therefore, the use of a particular type of detection means, i.e., Moire code disk or the magnets, as claimed by Applicant, is considered to be nothing more than the use of one of numerous and well known alternate types of detection means for angular determination that a person having ordinary skill in the art would have been able to provide using routine experimentation in order to determine the angle as already suggested by Strasser and by Okumura.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related devices.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Alexander Smith whose telephone number is 571-272-2251. The examiner can normally be reached on Monday through Friday from 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'RAS', with a long horizontal line extending from the end of the signature.

R. Alexander Smith
Patent Examiner
Technology Center 2800

RAS
February 7, 2005